

# Smart Multifunction Antenna for Lunar/Planetary Surface Network, Phase II

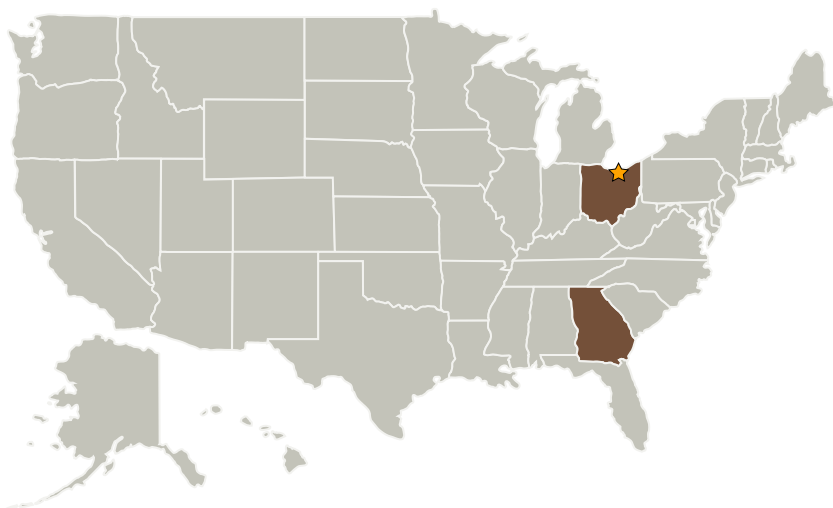
Completed Technology Project (2007 - 2009)



## Project Introduction

NASA is planning a series of human and robotic missions to explore the Moon and later Mars. According to NASA SBIR topic O1.10, directionally selectable, steerable antennas for mounting on human helmets, robots, and fixed structures (e.g. habitats) are needed in surface networks for these missions. These antennas must meet the specific performance requirements for lunar/planetary surface network and the demanding transport and operational space environments. In Phase-1 research, WEO established specific RF performance and physical/environmental requirements for the antenna, and designed, fabricated, and tested a breadboard smart antenna model to see whether it is feasible to meet these requirements. The Phase-1 results demonstrated the feasibility of this technical approach, thus justify Phase-2 research. WEO now proposes a two-year Phase-2 program to develop a brassboard "Smart Multifunction Antenna for Lunar/Planetary Surface Network." In the proposed Phase-2 research, the deliverables include an optimized brassboard model of a smart multifunction antenna. The parts and materials used in the hardware, the fabrication process, as well as other issues regarding this brassboard model will be compatible with and scalable to those of the final deliverable antennas for Phase-3 and deployable models, which must meet NASA's stringent transport and operational requirements, constraints of space mission environment, and the limited weight and size for mounting on astronauts and robots, fixed nodes, and other platforms.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission  
Directorate (STMD)

### Lead Center / Facility:

Glenn Research Center (GRC)

### Responsible Program:

Small Business Innovation  
Research/Small Business Tech  
Transfer

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Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Wang Electro-Opto Corporation	Supporting Organization	Industry	Marietta, Georgia

## Primary U.S. Work Locations

Georgia	Ohio
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX14 Thermal Management Systems
  - └ TX14.2 Thermal Control Components and Systems
    - └ TX14.2.5 Thermal Control Analysis